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TANKER OPERATIONS

IN A

COMPOSITE WING CONCEPT

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of requirements of the Operations Department

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Tanker operations in a composite wing concept offer several advantages centered on enhanced combat capability. However, several problems exist concerning tanker operations in composite wings. The most serious problems concern tanker operations as a national asset and tanker personnel problems associated with placing tanker crewmembers in a fighter wing. These problems can be solved by giving operational control of all tankers to the Military Airlift Command (MAC) and assigning all tanker crewmembers to MAC.

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Operations Desert Shield and Desert Storm focussed the nation's attention on the capability for power projection and strategic mobility in the United States Air Force. Even now, the mind boggling statistics of air power's success in Desert Shield/Storm continue to pour in. In the five week period of Desert Storm, more than 110,000 sorties, an average of 3,000 per day, were flown by coalition aircraft with mission capable rates of about 90 percent. Incredibly, air power's destructiveness so devastated the Iraqi army, it "needed only a push before it collapsed like a house of cards."[1]

Sneaking in undetected, the Air Force's F-117 stealth fighter proved to be the first star performer in the war. Flying 5.5 hour missions over distances sometimes exceeding 900 miles, F-117s hit some of the most important strategic communications centers in Iraq, enabling aircraft such as the F-4G Wild Weasel to swoop in undetected and knock out surface-to-air missile sites and their accompanying radars. In all, the F-117s flew 1,272 combat sorties --a third of them over Baghdad--covering an estimated 40 percent of the targets struck during the war, without a single hit from air defenses.[2]
A strike package of eight F-117s with two tankers proved to be as capable as 16 F-16 attack planes using precision weapons, accompanied by 16 F-15 fighter escorts, 12 F-4G and EF-111 defense-suppression aircraft, and 11 tankers.[3] Standard strike packages of 32 attack planes needed 16 fighter escorts, four Wild Weasel defense-suppression aircraft, eight radar jammers, and 15 tankers to have the same effectiveness.[4]

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1. Joby Warwick, "War's End: Bush Claims Victory `For All Mankind'," Air Force Times, March 11, 1991, p. 8.

2. Casey Anderson, "Stealth Fighter Pilot Says Unit Arrived in Saudi Ready to Fight," Air Force Times, May 13, 1991, p. 8.

3. Casey Anderson, "F-117A Success is Nut of AF Budget Debate," Air Force Times, May 13, 1991, p. 8.

4. Julie Bird, "AF Leaders Foresee Fewer, Costlier Weapons," Air Force Times, March 11, 1991, p. 26.

Another star of the war was the venerable B-52 bomber. In all, 64 B-52s operating from four bases flew an average of 50 sorties a day at the height of the war.[1] Becoming famous as the workhorse of the operation, the B-52s dropped nearly 20 million pounds of bombs during the war, many of them averaging 16 hour missions as they attacked oil refineries, Scud missile sites, and Iraqi forces.[2] Often, the B-52s stayed on station as long as seven hours over places where Iraqi Scud missiles were hiding, inhibiting the launches or striking sites after a launch was detected.[3] But the B-52 was even more noted for its role in pounding the Iraqi Republican guard. During the typical day, 27 B-52s rained 910,000 pounds of bombs on the Republican Guard.[4] Usually in four-ship flights, each B-52 unleashed the fury of 40,000 pounds of bombs on the unlucky enemy target below.[5] Combining the B-52's effects with the devastating effects of precision weapons launched from other attack planes such as the A-10, F-16C, F-15E, and Navy A-6, the air war blasted surviving Iraqi troops into shock, demoralization, and panic.

And the list of stars goes on. Throughout the entire Desert Shield/Storm period, Military Airlift Command (MAC) airlifters set records flying 17,600 intercontinental missions, hauling some 504,000 passengers and 569,000 short tons of supplies.[6] To keep the 3,000 sorties a day in the theater of operations from running into each other, AWACS E-3 aircraft were kept on station continually tracking aircraft, deconflicting flight paths, and direct-

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1. Casey Anderson, "The Power of One: SAC Says Unity was Key in the Gulf," Air Force Times, May 6, 1991, p. 26.

2. Joby Warrick, "B-52s in the Gulf: Heavyweights Called to do Close Air Support," Air Force Times, April 22, 1991, p. 13.

3. "The Secret History of the War," Newsweek, March 18, 1991, p. 30.

4. James W. Canan, "Airpower Opens the Fight," Air Force Magazine, March 1991, p. 16.

5. Sean C. Kelly, "60 Sorties Flown from Fairford," Air Force Times, April 22, 1991, p. 13.

6. Harry Summers, "Our 'Strategic' Forces are Non-Nuclear," Air Force Times, April 29, 1991, p. 58.

ing intercepts as necessary. More often than not, the AWACS crews found themselves directing air traffic into and out of refueling areas. For nearly every aircraft participating in the war had one thing in common--a gas guzzling thirst. From the big B-52 bomber to the small and agile F-117, mission success depended upon the life-blood of air refueling to keep engines running until safe recovery.

Serving as silent centers-of-gravity for multiplying the effectiveness of all Allied aircraft, an armada of tankers was kept in the air around the clock as airborne gas stations. More than 300 tankers--256 KC-135 Stratotankers and 46 KC-10 Extenders--delivered nearly 180 million gallons of fuel to aircraft involved in Desert Shield/Storm, giving coalition forces a capability for range and power no enemy could match.[1] Because of air refueling, U.S. aircraft deployed quickly, requiring far fewer enroute stops than would otherwise have been possible. Because of air refueling's force multiplier effect, many less aircraft were needed to provide on station reconnaissance, fighter escort, and bombing runs. Clearly, this quiet element of the Allied war effort proved the immense value of air refueling, just as all other operations from Vietnam to the present have done.

With so much depending on effective and efficient use of this national asset, the air refueling force will continue to be a critical part of every military operation involving U.S. forces. But now in the aftermath of Desert Storm's success, and even more because the Cold War threat has changed, priorities are shifting for use of the nation's armed forces. Accordingly, Air Force Chief of Staff, General Merrill A. McPeak, plans to restructure the Air Force along a composite wing concept to enhance the service's "Global Reach,

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1. Joby Warrick, "Air Force Gives Itself an A-plus on War Role," Air Force Times, May 13, 1991, p. 25.

Global Power" concept.[1] This concept involves a radical new way of basing and using many types of aircraft in a single wing, and of course, the tanker is involved. In the near future, a large number of KC-10 and KC-135 aircraft in the nation's air refueling fleet will be redistributed to operate under the composite wing concept. In addition, many KC-135s will be moved to the reserves and others retired because of budgetary pressures. The question is, will the new composite wing allow the remaining tanker fleet to operate as effectively and efficiently in meeting the needs of the nation as the tanker force has operated in the past?

In considering this question, I'll first provide some background information on the tanker, look at post Cold War thinking that is driving the Air Force to a new structure, then look at the composite wing concept. Moreover, we'll see tanker operations in a composite wing offer several advantages for use of the tanker fleet, primarily in the area of combat capability. However, there are several problems or disadvantages associated with operating tankers in this new concept, especially in managing the tanker as a national asset. After looking at the advantages and disadvantages of placing tankers in composite wings, I will suggest a way to solve the major problems and make the composite wing concept more compatible with peacetime tanker operational requirements. For now, suffice it to say, the managerial and personnel problems can be solved by giving operational control of all tankers to MAC and allowing tanker crews to compete for promotion and command opportunities within MAC. Let's begin by taking a brief look at the history of the tanker and its operational capabilities and gain a better perspective on tanker capabilities and factors behind the decision to place tankers in composite wings.

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1. Julie Bird, "McPeak Lays Out Rational for Composite Wing," Air Force Times, April 29, 1991, p. 4.

BACKGROUND

The modern day tanker came into being as a result of the Strategic Air Command's (SAC) need to extend the range and power projection capability of its bomber force. In the late forties, bomber aircraft such as the B-29 and B-50 were outfitted for air refueling purposes and redesignated as the KB-29 and KB-50.[1] But the need for more tanker airspeed in refueling SAC's jet engined B-47 bomber became apparent. So in 1950, the KC-97, the first commercial aircraft outfitted for air refueling purposes, was added to the SAC inventory.[2] By the mid 1950s, the need for even more speed in refueling SAC's B-52 brought the all-jet KC-135 into being. This early version of the Boeing 707 aircraft was the first aircraft specifically designed for air refueling, with fuel tanks built into the fuselage below the cargo/passenger deck.

While all the earlier tanker type aircraft were retired long ago, the KC-135 has served our nation since 1957.[3] It is currently being modernized with extremely fuel efficient turbo-fan engines which extend its useful life into the twenty-first century, and more importantly, greatly increase its air refueling offload capability. For comparison purposes, the KC-135R has a maximum range of about 4000 miles with a maximum cargo load of 88,000 pounds. The aircraft's maximum fuel load is just over 200,000 pounds, and all this fuel can be used to feed the aircraft's engines. On a typical air refueling mission, the KC-135R has a range of about 2100 miles with an offload of 120,000 pounds.[4] Any cargo carried reduces offload capability an equal amount. But greater fuel offloads for large aircraft such as the C-5, and the

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1. Headquarters Strategic Air Command, Office of the Historian, Seventy Years of Strategic Air Refueling 1918-1988, A Chronology, (Offut Air Force Base, Nebraska, May 1990), pp. 9-11.

2. Seventy Years of Strategic Air Refueling 1918-1988, A Chronology, p. 16.

3. Ibid., pp. 20-24.

4. Susan H. H. Young, "The 1990 USAF Almanac: Gallery of USAF Weapons," Air Force Magazine, ed. by John W. R. Taylor, May 1990, p. 153.

need for more cargo capability than the KC-135 could handle brought the next generation tanker into being.

The newest member of the tanker fleet, brought into service in 1981, is the KC-10. A modified version of the wide-body commercial DC-10, the KC-10 is capable of receiving and offloading fuel in-flight and carrying large amounts of cargo simultaneously. In its airlift role, it has a maximum range of about 4400 miles with a maximum payload of 27 pallets or about 170,000 pounds of cargo.[1] Designed to carry a maximum fuel load of 340,000 pounds, the KC-10 can offload 200,000 pounds of fuel with a range of 4,000 miles.[2] While most KC-135s are not capable of receiving fuel in-flight, the KC-10's ability to do so makes its real range with fuel or cargo virtually unlimited if refueled in-flight. Another feature unique to the KC-10 is its built in capability to refuel aircraft by drogue-to-probe or boom-to-receptacle methods on the same mission, whereas the KC-135 must be specifically configured for drogue refueling prior to takeoff. However, 150 KC-135s and all KC-10s are programmed to be modified with three drogues to give them more joint operability, especially for operations like Desert Storm which involved refueling for U.S. Navy, British, and Saudi aircraft.[3] Upon completion of the drogue modification, all the programmed tankers will have wing tip and body drogues for simultaneous drogue refueling of three probe equipped aircraft, or the tankers can still use boom to receptacle air refueling for Air Force aircraft.

Currently, the tanker fleet consists of 538 KC-135s and 59 KC-10s.[4] However, 128 of the KC-135's are assigned to reserve forces and the reserves

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1. Susan H.H. Young, "The 1990 USAF Almanac: Gallery of Weapons," p. 153.

2. "Air Force Missions and Special Tasks," NWC 3001, U.S. Naval War College Operations Department, September 1990, p. 21.

3. Casey Anderson, "Addition of Drogues Planned to Give Tankers Versatility," Air Force Times, April 1, 1991, p. 29.

4. "The No-Frills Air Force," Air Force Magazine, April 1991, p. 73.

share all the KC-10s. In 1989, a year of relative peace in the world, the tanker force flew 49,405 air refueling sorties requiring 135,962 flying hours.[1] About 70 percent of all air refueling sorties went to aircraft other than SAC bombers, underscoring the evolving mission of the tanker fleet from nuclear force air refueling roles toward conventional force support.

Because the air refueling force was created for strategic support of SAC nuclear bombers assigned to roles in the nation's Single Integrated Operational Plan (SIOP), all tankers were assigned to SAC for operational control and were exclusively based in SAC air wings. SAC, therefore, became the single tanker manager for KC-10 and KC-135 aircraft, responsible for air refueling needs of all USAF major commands, special operating agencies, the Department of Defense (including the Navy and Marine Corps), and other agencies.[2] Moreover, SAC has done a superb job ensuring the tanker fleet has met all SIOP roles and, to the maximum extent possible, conventional force requirements. But because of ever growing need for conventional support, a potential problem was identified in the USAF's Fiscal Year 1990 Report to the U.S. Congress:

> All KC-135s are required to support forces committed to the general nuclear war plan, the SIOP. The KC-10s support deployment and employment of general purpose forces. However, since this requirement far exceeds the capability of the KC-10, a large number of KC-135s are assigned both SIOP and conventional war missions. This creates difficult allocation choices when conventional operations are accompanied by an increased SIOP readiness posture...[3]

Since the Soviet nuclear threat is still a major factor in planning tanker operations today, can you imagine the difficulty of conducting a Desert Shield/Storm type operation if no KC-135s could participate because the SIOP

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1. Headquarters Strategic Air Command, Tanker Activity Report for Fiscal Year 1989.

2. Department of the Air Force, AF Regulation 55-47, Air Refueling Management (KC-10 and KC-135), (Washington: Headquarters USAF, XOOTS, 1 September 1989), p. 1.

3. Robert Salvy and Guy Willis, "In-flight Refueling, Greater Flexibility for Airpower," International Defense Review, November 1989, p. 1511.

readiness posture required most of them to be placed on alert? But only the KC-10 is guaranteed to be available for conventional air refueling roles. In fact, before the KC-10 came into service, the planned dual-role capability of the aircraft forced an agreement between SAC and MAC concerning use of the KC-10 in airlift roles. Because of the conventional airlift role, the KC-10 was excluded from SIOP roles. And when the KC-10 is used in cargo carrying roles, it falls under the operational control of MAC. Thus, we see the potential for tug-of-war between SAC and MAC over use of this valuable aircraft.

Knowing that tankers evolved under SAC's control and are now enmeshed in SIOP and conventional air refueling roles and shared operational control between SAC and MAC for use of the premier KC-10 aircraft, what is the driving need to seemingly add another layer of control on the tankers by placing them in composite wings controlled by the Tactical Air Command (TAC)? The answer lies in the shrinking military budget and the need to increase the Air Force's capability in conventional power projection and mobility.

In a White Paper titled "The Air Force and U.S. National Security," Donald Rice, Secretary of the Air Force, lays out his planning framework to support the nation's defense strategy. His "Global Reach, Global Power" program lists five priorities:

1. SUSTAIN DETERRENCE - Nuclear Forces
2. PROVIDE VERSATILE COMBAT FORCE - Theater Operations and Power Projection
3. SUPPLY RAPID GLOBAL MOBILITY - Airlifters and Tankers
4. CONTROL THE HIGH GROUND - Space and C3I
5. BUILD U.S. INFLUENCE - Strengthening Security[1]

But even though nuclear deterrence vis-a-vis the Soviet Union is still of

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1. Department of the Air Force, White Paper, The Air Force and U.S. National Security: Global Reach - Global Power, (Washington: SAF/OSX, June 1990), p. 5.

highest priority, the Air Force's shrinking budget is forcing Air Force leaders to "sacrifice force size to protect readiness and key weapons."[1] This translates immediately to retirement of many B-52 bombers, and makes the purchase of more than a few B-2 bombers seem unlikely. But as the nuclear bomber force shrinks and the need for nuclear support roles of the tanker declines, the strategic mobility role for conventional operations is increasing. Secretary Rice says:

> Given the unpredictability of the future, our force planning must call for an increased emphasis on force projection capabilities --a shift toward even more flexible, rapidly responding precise, lethal forces with global reach. The Air Force's focus will be on emphasizing those inherent characteristics of airpower--speed, range, flexibility, precision, and lethality--which best support U.S. national security in the uncertain world of the 1990s and beyond... In relative terms, the Air Force will be more CONUS based, with smaller and more efficient base structure at home and abroad... The emerging Air Force will provide unmatched capabilities in extending U.S. global reach and the ability to respond rapidly to fast developing conventional crises.[2]

The Secretary also went on to say in his White Paper, "Faced with the potential of reduced overseas bases for all U.S. forces, the concept of global reach...highlights aerial tankers as a critical asset in meeting future needs."[3] Citing the need for an agile, modernized combination of fighters, long range bombers, precision standoff weapons, tankers and reconnaissance and communications assets, he says tankers are the lifeline of global reach because they increase range, bomb load, and loiter times and leverage all service capabilities on land, sea, and in the air.[4] Going further, Secretary Rice

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1. "The No-Frills Air Force", Air Force Magazine, April 1991, p. 72.

2. Donald B. Rice and General Larry D. Welch, "FY 91 Air Force Posture Statement," Air Force Update, (Washington: Secretary of the Air Force, Office of Public Affairs, 20 February 1990), p. 2.

3. Department of the Air Force, White Paper, p. 12.

4. Secretary of the Air Force, Office of Public Affairs, One Liners, United States Air Force. (Washington: SAF/PA, May 1990), p. 3.

grouped tankers into the strategic mobility category and identified the tanker force as a national asset, along with airlifters, rather than listing them as strategic nuclear assets.[1]

Therefore, we see the Secretary's desire to maximize power projection and mobility as a driving force behind the decision to group tankers into composite wings. As the overall number of wings decreases, Secretary Rice wants to increase force value of the remaining wings and keep Air Force combat power as high as possible. But we also see what appears to be a major shift from looking at tankers as primarily SIOP assets to a predominant emphasis on the tanker's conventional capability. Moreover, the composite wing concept, while attempting to satisfy the Secretary's desire for power-packed groupings of aircraft, leaves open to question of whether this concept allows for efficient management of the tanker as a national asset for the good of all air refueling users. However, before we deal with that question, we need to look more closely at what a composite wing is all about.

THE COMPOSITE WING AND ITS ADVANTAGES

The highly mobile composite wing envisioned by Secretary Rice is made up of many kinds of aircraft that will deploy as a package to future trouble spots anywhere in the world. The recent war with Iraq gave the critical boost to the decision to reorganize Air Force wings into composite groups of aircraft. In short, the war made clear to everyone involved that air power's effectiveness and ability to influence events is enhanced when it is deployed in an integrated manner.[2] Accordingly, the Air Force will have at least two types of composite wings. One type, made up of F-15E Strike Eagles, F-15C

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1. One Liners, United States Air Force, p. 4,5.

2. Toby Warrick, "Air Force Planning Integrated 'Composite' Wings," Air Force Times, April 18, 1991, p. 4.

Eagles, night capable F-16s, E-3A Airborne Warning and Control System aircraft, KC-10 and/or KC-135 tanker aircraft (that can also serve as cargo carriers), and an associated B-52 bomber component will be organized to reach out over long distances and take immediate strike action. General McPeak says a good example of such a strike was the one-time action raid against Libyan President Moammar Gadhafi.[1]

The second type of composite wing will be designed to support the deployment of U.S. ground forces. This type wing will include A-10A Thunderbolt II attack planes, OA-10A observation aircraft, F-16s, C-130s, and tankers. General McPeak envisions this type of wing will support the Army's 82nd Airborne Division, deploying with the 82nd and organizing to support the division in missions requiring rapid troop response. Such actions might require airfield seizure or deterrent presence as in Desert Shield.[2] Interestingly, Desert Shield underscored the need for a composite ground force support wing. During the early stage of Desert Shield, only two squadrons of F-15s were available to protect the precarious position of the 82nd Airborne Division, the first troops to arrive on scene. Secretary Rice didn't think that arrangement would have provided the 82nd much firepower had the Iraqis attacked.[3] This second type of composite wing eliminates that kind of vulnerability. Of significant note, MAC strategic airlifters will not participate in either composite wing concept.[4] Because of national airlift roles under USTRANSCOM, MAC's strategic airlift assets will not be parceled out. But no matter what type of composite wing is considered, tankers are involved.

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1. Julie Bird, "McPeak Lays Out Rationale for Composite Wing," Air Force Times, April 29, 1991, p. 4.

2. Ibid.

3. Joby Warrick, "AF Planning Integrated Composite Wings," p. 4.

4. Casey Anderson, "New Conventional, Nuclear Commands Seen," Air Force Times, February 11, 1991, p. 3.

At this time, it's uncertain how many Air Force wings will be included in the composite concept. However, the Air Force is reducing to 26 combat coded fighter and attack wings with about 72 aircraft in each--active duty forces will have 15 wings, reserve forces will have 11.[1] But General McPeak says the distinction between tactical and strategic units will fade as the force evolves toward composite wings, trained and outfitted for multiple missions. Even strategic bombers will eventually be based in these combat units.[2] Thus, it's a safe estimate that all 15 active duty wings will be transformed into composite wings sooner or later. And the tanker support package assigned to each wing may include up to 20 aircraft, possibly with a mix of KC-135s and KC-10s. For the immediate future, KC-10s are being assigned first, with 20 now in the new 4th Wing at Seymour Johnson AFB, North Carolina, and an unannounced number to go to the new composite wing being built at Mountain Home AFB, Idaho. By the end of 1993, the KC-135 fleet will be reduced to 469 aircraft with 222 of these in the reserves.[3] This leaves 247 KC-135s in the active force. If the 59 KC-10s and 247 KC-135s are parceled out to all 15 combat wings, each wing would have 20 tankers assigned. Moreover, a 20 tanker squadron would give a tremendous airlift and refueling capability to any composite wing as Desert Storm proved.

During Operation Desert Storm, a composite wing was created at Incirlik AB, Turkey, to provide a second front to the war. The 7440th Composite Wing included F-16s, A-10s, F-15s, E-3A AWACS aircraft, EF-111s, F-4Gs, C-130s, and KC-135 tankers.[4] According to General McPeak, "It was a textbook composite wing. They had air superiority capability; they had a ground attack capabili-

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1. "Twenty-Six Wings," Air Force Magazine, April 1991, p. 31.

2. Julie Bird, "McPeak Lays Out Rationale for Composite Wing," p. 4.

3. "The No-Frills Air Force," p. 73.

4. Sid Balman Jr., "Wing Shifts to Refugee Flights," Air Force Times, April 22, 1991, p. 16.

ty; they had AWACS; they had electronic combat aircraft representing the full range of capabilities that were needed to prosecute the war in the north part of Iraq. As a consequence, they were able to simplify the command and control arrangements enormously."[1] The 7440th flew 4600 combat sorties in day and night strike packages without loss of a single plane to Iraqi forces. The day strikes employed 55 aircraft--20 F-16Cs with gravity bombs for ground targets; eight F-4Gs with HARMs and Shrike missiles for hitting anti-aircraft artillery and SAM command posts; eight F-15Es armed with Sparrow and Sidewinder missiles provided fighter CAP; three F-111As shielded the force from enemy radar; one EC-130 jammed Iraqi communications; one E-3A coordinated mission activity; and five ship KC-135 cells provided continuous air refueling support near the Iraqi border.[2] The night strike package used 40 aircraft in about the same mix but added 12 F-111Es with gravity bombs. In addition, F-16s were reconfigured to act as Wild Weasels at night and went after radars with HARMs and Shrike missiles. Towering above all other wings in the war, the outstanding success of the 7440th highlighted the advantages of composite wings.

The primary advantage of the composite wing was very obvious to the wing commander of the 7440th, Brigadier General Lee A. Downer. In short, he was the sole commander in charge of putting together the war effort that employed 10 different types of aircraft, 2,000 support personnel, and incredible mountains of spare parts from 10 bases in the United States and Europe. "Having everyone and everything under his command allowed him to change details associated with mission timing and aircraft maintenance priorities without worrying whether another commander would be thrown off schedule or whether a par-

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1. Julie Bird, "McPeak Lays Out Rationale for Composite Wing," p. 4.

2. Sid Balman Jr., "Strikes from Turkey 'Windfall' for Air War," Air Force Times, April 22, 1991, p. 16.

ticular aircraft was needed elsewhere."[1] Integration of all the forces was made easy..."They just saluted smartly and did it."[2] According to General McPeak, having that integration meant Lieutenant General Charles A. Horner, the Joint Air Forces Component Commander of all air forces during Desert Storm, "didn't have to send the 7440th a complete script describing every action he wanted them to take. He was able to send less detailed instructions than those to forces in the south which were spread out across the Arabian Peninsula."[3] Thus, the 7440th illustrated three principles for successful composite operation: "give a single commander a mission to do; give him the resources to accomplish the mission; and give him broad guidelines on how to do it and leave the detailed planning to him."[4]

But the composite wing not only simplifies and streamlines command relationships above wing level--it also allows greatly simplified structure within the wing. With the goal of reduced overhead and increased efficiency, each wing will initially have four groups reporting to the commander. The Operations Group will include all the flying squadrons and an operations squadron which will provide weather, air traffic services, and airfield management. A Logistics Group will contain maintenance, transportation, and logistic support squadrons. A Support Group will include all other air-base operability functions such as the Personnel Office, Finance, the Officer's Club, and golf course. The Medical Group completes the structure.[5] But within a short time, General McPeak would like to further streamline the organizational chart by combining operations and maintenance functions. In his concept, the opera-

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1. Sid Balman Jr., "Composite Wing Pooled Its Resources," Air Force Times, April 22, 1991, p. 16.

2. Ibid.

3. Julie Bird, "McPeak Lays Out Rationale for Composite Wing," p. 4.

4. Ibid.

5. Joby Warrick, "AF Planning Integrated 'Composite' Wings," p. 4.

tional flying squadron commander will be responsible for all operations and maintenance of the squadron's assigned aircraft. This makes one person totally responsible for all aircraft of a certain type. Currently, the flying squadron commander is responsible for assigned aircraft only while they are airborne. When a late takeoff occurs or aircraft damage is found long after a flight, neither the operations or maintenance commander can often agree on who gets the blame. Thus, the new organization General McPeak envisions would fix responsibility to one person for each type aircraft.

Another advantage to the composite wing is its simplified training plan. The former monolithic aircraft wing could only train with other aircraft in integrated combat packages during large scale exercises or during the war itself. However, the composite wing puts combat packages together at the wing level and allows the wing's units to train and plan together as a single, integrated unit. Moreover, the integration of strategic, tactical, and logistical planning by people working in close proximity is a key factor to increasing flexibility in a unit.[1] Physical proximity not only makes scheduling of training much easier than with dispersed units, but more importantly, trims valuable time from the planning required to assemble force packages in crisis situations.[2] Composite wing planners will know what the wing can do and can logically tailor force packages to meet any need without undue over or under kill in their resource planning factors.

As the unit trains together, tactics can be adapted to better accomplish the mission. During Desert Storm, as tankers and fighters from the same base continually worked together, more efficient tactics evolved. In one case, a five ship KC-135 formation was routinely placed in orbit, only to wait for

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1. Henry E. Eccles, "Extracts from Logistics in the National Defense," NWC 2232, U.S. Naval War College, Operations Department, p. 117.

2. Jeffrey Record, "Air Force's Future Bright After Stellar Gulf Showing," Air Force Times, March 11, 1991, p. 34.

their F-16 fighters to launch from the same base at a later time and join the tankers for refueling before going on to their targets. The crews soon discovered they could save over an hour on each mission by just performing simultaneous Buddy departures, refueling the fighters enroute to the orbit drop off point, and recovering immediately rather than waiting in orbit for recovery instructions.[1] In normal training conditions, a procedure as simple as this can take months to work out between dispersed units who practice together only infrequently. Obviously, the potential innovation for tactics and training in composite wings is unlimited. And the bottom line result of the process is improved doctrine and combat capability.

In fact, a new air doctrine referred to as "hyperwar" developed during the Persian Gulf War because of the integrated actions of all aircraft working together so closely. In theory, this doctrine calls for air forces to bombard air defense networks, telephone systems, electrical generating plants and other targets deep in enemy territory in a sudden and overwhelming strategic air campaign.[2] The goal is to achieve near-instantaneous paralysis of the enemy's war-fighting capabilities. Colonel John Warden, Air Force Deputy Director for War Fighting Concepts, says the war against Iraq "has established the model for operations above the guerrilla level for the next quarter century."[3] On a smaller scale than the total air war of Desert Storm, composite wings are ideally suited to deliver a "hyperwar" punch. And the tanker has a key role in support of this doctrine, just as the tanker supports most other facets of doctrine whether termed "aerospace" or "air-land."

In final analysis, we can conclude the composite wing allows the tanker

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1. Information related to me by crewmembers in the 306th Air Refueling Squadron, Altus AFB, Oklahoma. These crewmembers served for 129 consecutive days in the Desert Shiel/Storm theater.

2. Casey Anderson, " 'Hyperwar' Success May Alter AF Doctrine," Air Force Times, April 22, 1991, p. 24.

3. Ibid.

to better satisfy the basic principles of war as set forth by Air Force Manual 1-1, Basic Aerospace Doctrine.[1] Air war history from Vietnam to now, and especially Desert Shield/Storm, testifies that whatever the objective or military action the wing must accomplish, tankers will be integrated into the strike package. Since the composite wing commander has his own tanker squadron, he can apply the benefits of the tactics and training the tankers and other wing aircraft have perfected to get the most from the tankers' fuel offload capability. After completing low or high altitude refueling tactics as required to guarantee security of the mission, all aircraft in the strike package can seize the initiative and take the offensive against their targets simultaneously or in waves and achieve utmost advantage from surprise. With the luxury of full fuel tanks, the attack aircraft can readily maneuver to hit targets from any direction, thereby taking full advantage of opportunities to apply mass and economy of force to destroy the enemy.

And the list of doctrinal advantages continues. With the range and force multiplier effects from indigenous air refueling, the commander can take full advantage of every opportunity to set the timing and tempo of the battle, optimizing use of his forces to dominate the action, remain unpredictable, and create uncertainty in the mind of the enemy. As in the case of the 7440th Composite Wing, unity of command within the wing, combined with common tactical doctrine, achieved great unity of effort through simplifying the chain of command and operating procedures for the tanker. In the long run, including tanker crews in the composite wing and allowing them to work regularly in training with the crews they support in combat will improve the cohesion of the force package. In addition, inclusion of tankers in the wing gives the wing commander maximum control of all logistics features of the tanker--cargo

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1. "Basic Aerospace Doctrine of the United States Air Force," Air Force Manual 1-1, 16 March 1984, (NWC 2014, U.S. Naval War College, Operations Department), pp. 2-4 to 2-10.

hauling, passenger movement, and air refueling capabilities. Thus, the commander can take full advantage of the tanker's characteristics and fight more successfully through better adherence to the generally accepted principles of war (underscored in this and the previous paragraph).

Though use of tankers in composite wings has tremendous advantages in combat situations, there are several problems to be solved concerning the tanker's use in this concept. I've already alluded to a potential tug-of-war for operational control of the tanker in my discussion of the history and background of the tanker. So let's now focus attention on those problems or disadvantages and discuss their impact on the composite wing.

PROBLEMS ASSOCIATED WITH TANKERS IN COMPOSITE WINGS

Perhaps one of the trickiest problems facing tanker operations in the composite wing concept concerns operational control and centralized scheduling. If the tanker is truly a national asset as Secretary Rice says it is, and if there are only a fixed number of tankers, especially KC-10s, how will all the users who need air refueling receive an equitable share of tanker support to meet their needs if the tankers are dedicated to composite wing activity? Certain air refueling users such as MAC, the Navy, and the Marine Corps will not be part of composite wings, yet their air refueling needs must continue to be satisfied. Under the composite wing concept, SAC will retain operational control of the tankers for centralized scheduling. However, the composite wings will be commanded by TAC wing commanders who are not in the SAC chain of command. In addition, operational control of the KC-10 goes to MAC when the aircraft is involved in cargo or passenger hauling. Who wins in this type situation?

Usually the wing commander who owns the asset wins because possession is nine-tenths of the battle. Moreover, the wing commander has one thing in mind--getting the most out of wing assets for the good of the wing. In the

mid 1970's, after the Vietnam War, wing commanders in SAC had great latitude and control of who they would give refueling support. For the most part, SAC tankers refueled SAC bombers located at the same base. It was only natural for the wing's tankers to take care of the wing's bombers first and give leftover sorties mostly to other receiver aircraft units in the same vicinity. But this apparent 'good deal' for SAC wings resulted in inconsistent training levels and flying hour distribution for the crew force. Furthermore, serious problems in equitable cross-command scheduling of tanker support sorties soon developed, exacerbated by the drastic increase in numbers of air refuelable aircraft coming into the Air Force inventory in the late 1970s.

When TAC and MAC realized their crews weren't receiving enough air refueling support and training, a cry went out for more equitable scheduling. Thus, Headquarters SAC developed a centralized tanker scheduling process which provides equitable allocation of available air refueling support sorties to all Major Command users including the Navy and Marine Corps. Under the composite wing concept, this centralized scheduling process will still be performed by SAC. But how can the wing commander make his tankers available for equitable distribution of tanker sorties to units outside the wing, when the whole idea of the composite wing is cohesiveness and close training of units in the wing? Certainly, there will not be as many air refueling sorties available to units outside the wing as was previously made available in the old monolithic SAC wing structure. Effects of this on air refueling training will be especially acute during the years of transition to the composite wing.

Another factor which will reduce the number of tanker training sorties available will be increased use of the tanker for cargo and passenger hauling missions. After the Vietnam War, SAC wing commanders became very adept at using the cargo/passenger capability of the tanker. In fact, a Congressional investigation revealed the tankers were competing with the airlines in movement of passengers and were involved in fraud, waste and abuse by hauling more

Coors beer across state boundaries than Coors' own distribution trucks. When a doctored picture of a KC-135, painted like a Coors beer can, appeared in a national news magazine, SAC cargo hauling missions were canned so to speak. Suddenly, cargo hauling missions in the KC-135 were forbidden by SAC regulation, and wing commanders had to justify to higher headquarters any landing involving stops at other bases. In the composite wing, TAC wing commanders should be free to use their tanker assets for maximum training and logistics support for the wing. As we've already seen, both the KC-135 and KC-10 can carry cargo. However, KC-135s are bound strictly by SAC's regulations for carrying cargo and passengers, whereas the KC-10s carry cargo and passengers under the MAC system and sometimes under the SAC system. I don't believe the TAC composite wing commander will resort to the excesses of the past in carrying unauthorized cargo on tankers. Certainly, the commander should not be ham-strung by two sets of regulations concerning cargo and passenger hauling.

Coordination and reporting problems will be increased as SAC will have to depend on TAC for timely update of tanker locations and availability. In exercises and large scale operations, tankers from many wings will have to be employed. For example, deployment of a composite wing to an overseas location will require far more tankers than assigned to the deploying wing. To get an F-15 fighter to Saudi Arabia during Desert Shield required seven separate air refuelings, with tankers conveniently positioned all across the Atlantic Ocean and Mediterranean Sea. Keeping track of all tanker locations in such operations is a tremendous challenge. And now, for continuous update of tankers available to support mission taskings, SAC will have to coordinate with TAC, adding an extra layer of work on the tanker scheduling staff. In addition MAC will have to coordinate with both SAC and TAC for use of KC-10s in the MAC channel. How well will SAC, MAC, and TAC command posts function together in free flow of reports and coordination?

A more pressing problem concerns SIOP alert. As tankers are increasing-

ly relocated to composite wings, how will the SIOP be supported? Will tankers be placed on immediate response alert at their new locations? Will they be used in a satellite alert concept at locations where SAC nuclear bombers are located? Or will alert be changed to some new concept like strip alert? If the National Command Authority believes notification times for nuclear attack by the Soviets are greatly increased in the post Cold War world, perhaps tankers can be generated, left on strip alert ready to start engines, with crews at home on telephone standby. Most likely, alert duty as we know it today, will not go away completely. So the question of building an alert support infrastructure in the composite wing remains. How costly will this be, and how will the SIOP support detract from the training and cohesiveness of the wing's tanker crews with non-SIOP crewmembers?

On the personnel side, upward movement and promotion opportunity for tanker crewmembers in TAC composite wings will present serious problems. Moreover, General McPeak has stated his plan to have TAC generals commanding each of the 15 active duty wings. What's more, the composite wing Operations Group commander will be a TAC colonel with fighter background. So people aspiring to those positions must come up through the normal TAC fighter/bomber aircraft channel. This means the highest position in the wing for a tanker person is squadron commander, usually a lieutenant colonel. Furthermore, in competition with TAC fighter crewmembers for a very limited number of *definitely promote* recommendations controlled by the wing commander, tanker crewmembers can expect less promotion opportunity than fighter types who can go all the way to the top. Even the new dual track Undergraduate Pilot Training system the Air Force is currently transitioning to, conspires to keep tanker crewmembers from ever cross-training as fighter or bomber pilots--pilots are either `heavy' or `fighter' qualified for their careers by the track they enter as lieutenants. Thus, tanker crewmembers' potential for frustration is high and retention rates will probably be even worse than the low 30 percent

they are now. What can TAC do to resolve these personnel problems?

Another good question is who will advocate tanker programs to the Air Staff? Will SAC continue to be the focal point for all tanker programs such as flying hours, operations plans, aircraft upgrades, modification, and maintenance, and countless other programs such as tanker simulators and training? As more and more TAC emblems are painted on the tails of tankers, and TAC takes possession of the aircraft and crewmembers, will SAC continue to fight as hard for tanker program money as for B-2 and other bomber related programs? Surely some of the responsibility for tanker programs will shift to TAC. If so, will TAC give the tanker programs proper priority as national assets, or will TAC programmers be more interested in money for fighter programs? Even with SAC advocating the program, the tanker flying hour program comes under constant attack from sources in Congress, the Pentagon, and within Headquarters SAC because operations and maintenance funds for a fleet of over 500 tanker is extremely large. To fund tanker flying hours in the new fiscally constrained environment of the 1990s will require offsets in other programs SAC or TAC desire. Will SAC or TAC advocate more than the meager 15 to 18 flying hours a month most tanker crews currently receive? Will tanker crewmember proficiency rates suffer under the composite management between TAC and SAC? It's possible, unless someone strongly advocates the tanker program.

Another potential problem area critical to the operation of the composite wing is logistics. General Robert D. Russ, recently retired commander of TAC, acknowledged logistics is more complicated for wings of multiple type aircraft.[1] Indeed, past Air Force doctrine did not espouse stationing different types of aircraft together because of the difficulty and expense of main-

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1. Lee Ewing, "Air Force Planning Integrated Composite Wings: Tactical Force to Shrink But Remain Active," Air Force Times, April 8, 1991, p. 4.

taining dissimilar planes together.[1] But General Russ believes high reliability rates of aircraft as we saw during Desert Storm may prevent logistics problems from being show stoppers. Under current plans to keep operations and maintenance funding for each wing about the same as it is now, the Air Force is hoping improvements in reliability and maintainability of aircraft components will achieve large gains in efficiency and make the composite wing work properly. If these gains in efficiency are possible, intermediate maintenance functions, one level of the Air Force's three level maintenance system, can be removed from the wing and pooled at some other location.[2]

Moreover, reliability of complicated electronics systems has greatly improved during the 1980s. Because of this, SAC discovered that having electronic repair shops at each base is less cost effective for routine repair than sending components to regional repair centers. During 1990, regional repair work on KC-135 and B-52 avionics repairs allowed SAC to cut 235 manpower slots.[3] Furthermore, internal diagnostics testing equipment in several types of aircraft has drastically reduced the time required to locate problems. Combining these savings with increased cross-training to enable maintenance crewmembers to work on several different aircraft subsystems instead of specializing will keep the cost of logistics as low as possible. Even if composite wings are more expensive to operate than specialized wings, Lawrence Korb, former Assistant Secretary of Defense (Manpower, Reserve Affairs, Installations, and Logistics), says, "It makes sense to put units together for deployment in (more combat effective) fighting packages...Cost is not every-

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1. Casey Anderson, "New Conventional, Nuclear Commands Seen," Air Force Times, February 11, 1991, p. 3.

2. Casey Anderson, "Reliability Gain Seen As Spur to Composite Wing," Air Force Times, April 8, 1991, p. 24.

3. Ibid.

thing."[1]

Finally, how will reserve force tankers tie in to composite wings? Will the reserve force's 11 wings be loosely structured for composite activity or will they keep the same structure as the reserves currently use with individual units called up to fit in wherever needed? With 222 KC-135s in the reserves and two squadrons of KC-10 reserve crews, this force must be integrated into SIOP alert, exercise, continuation training, and operational support requirements. But in the Pentagon's new Total Force Policy Report to Congress, reserve tankers will have fewer roles supporting the SIOP and added emphasis on mobility support.[2] Even though the Reserves will have a diminished role in nuclear support roles, if integration with all areas of tanker support requirements is done properly, active duty tankers can be relieved somewhat from collateral roles and perhaps have more time for training with their composite wings. Beyond question, the reserve tankers can provide a great deal of deployment support for operations like Desert Shield. In turn, composite wing tankers can be freed to deploy with their wings and carry fuel or cargo as required by the situation. In any event, how the reserves are used will have a significant impact on active duty tankers in composite wings.

So these are the problems confronting tanker operations in the new composite wing structure. In my opinion, the truly significant problems are managing the tanker as a national asset while keeping it in the composite wing for training cohesiveness and taking care of 'heavy' tanker aircraft personnel in a wing dominated by 'fighter' type commanders. Solutions to the other problems such as the impact of SIOP alert support will be fairly easy to solve over time as new plans are developed and support requirements are determined.

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1. Lawrence J. Korb, "Military Force Structure Implications of Desert Shield/Desert Storm," Lecture, U.S. Naval War College, Newport, RI: 8 April 1991.

2. Grant Willis, "Total Force to Change Reservists' Missions," Air Force Times, February 4, 1991, p. 16.

However, tanker management and personnel problems require a radical solution. Keeping the tanker under SAC operational control and attempting to force TAC wing commanders to understand the tanker's global mission would be merely a band aid approach to the problems, and offers no real solution to the tanker personnel problems. Thus, I make the following recommendation.

RECOMMENDATION

The proper approach to solving the nation's mobility and power projection requirements is to give operational control of all cargo and tanker aircraft assets to a single command and treat the tanker force as a true national asset in the same way strategic airlifters are treated. In the context of composite wings, MAC should have operational control of all tanker activity and all tanker crewmembers should be assigned to MAC, regardless of where they are based. Only if the composite wing deploys as a combat unit should operational control of the tankers in that wing totally chop to the TAC wing commander, and only for the duration of the deployment. Let me emphasize the reasons why this makes sense.

Assigning operational control of all tanker assets to MAC would eliminate much duplication of effort and streamline command and control procedures. Moreover, MAC is the logical choice for operational control of all tanker assets because MAC's emphasis is on mobility and conventional force support, whereas TAC and SAC are more concerned with and oriented to the combat roles of fighters and bombers. Transferring operational control of tankers to MAC would give all airlift and air refueling users a single command to work with for all mobility needs. Furthermore, MAC would be the advocate to the Air Staff for all mobility type aircraft and crews. This would free SAC and TAC to focus on what they do best--combat. And MAC could focus on what it does best--combat support.

From a practical standpoint, assigning operational control of tankers to

MAC does several things immediately. First, the need for a separate set of SAC passenger carrying regulations is eliminated, streamlining cargo and passenger carrying operations especially for the KC-10. Secondly, the move would allow use of all KC-135s to carry cargo when appropriate in the airlift system, as well as providing air refueling. Third, the tanker force would now come directly under the central planner of strategic mobility, U.S. Transportation Command (USTRANSCOM). Fourth, this allows more efficient use of tankers from a flying time aspect. In Fiscal Year 1989, all tankers flew about 50,000 sorties involving about 200,000 flying hours. About 135,000 hours were used for completion of air refueling events. Of significant note, about 40,000 flying hours were used for purposes such as overseas staging, passenger support, cargo missions, and depot deliveries.[1] This indicates about 20 percent of the total tanker flying hour program is already being used in similar roles as MAC airlifters. So harnessing all this mobility capability under one command removes parochial controls from the tankers and gives all users equitable opportunity for either airlift or air refueling with the tanker. Moving from an operational to a personnel standpoint, placing tanker personnel under MAC also makes sense.

Assigning all tanker/transport crewmembers to MAC offers the best solution to personnel problems associated with the tanker. First, upward mobility for all 'heavy' types within a 'heavy' aircraft command would be perceived as more equitable than promotion opportunity in a 'fighter/bomber' command. Tanker people could still aspire for top level command positions within MAC. Secondly, because the pilot teams of 'heavy' aircraft are split off from training with 'fighter/bomber' pilots in the Air Force's new dual track pilot training system, this eliminates needless in-house rivalries which will result from bringing 'heavy' aircraft pilots in direct competition with 'fighter/

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1. HQ SAC, Tanker Activity Report documents for FY 1989.

bomber' pilots for promotion within a `fighter/bomber' wing in a `fighter/ bomber' command. This means tanker crewmembers would be attached to composite wings for training purposes, but their performance and promotion reports would go from the squadron commander through a MAC wing commander and into the personnel system. Of further importance, putting all tanker personnel under MAC opens the possibility for evening out flying experience among crewmembers.

After pilot training, all tanker/transport pilots start off with the same training and experience base in the T-37 and T-1A trainer aircraft. But a large flying experience gap soon develops between tanker and transport pilots. In SAC, tanker pilots average about 18 hours per month, whereas MAC airlift pilots average about 30 hours.[1] (In actuality, line KC-135 crewmembers often average less than 15 hours a month because of SIOP ground alert schedules. However, line airlift crewmembers may average more than 50 hours a month because of routinely heavy airlift requirements.)[2] Therefore, large disproportionate gaps in flying experience develop between MAC transport and SAC tanker pilots. In the long run, this lack of flying time produces much dissatisfaction among tanker pilots, resulting in separation from the Air Force in favor of airline jobs.

Placing all tanker/transport pilots in MAC and allowing cross-training at appropriate intervals could solve the flying hour problem and satisfy more of the pilot force. Cross-training within a single command can be approved much easier than going through the current selection maze for the SAC/MAC exchange program. Each command tends to jealously guard its people, which hinders cross-training to any great degree. The increased training costs associated with cross-training would be more than offset by the more even

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1. Dick Cheney, Secretary of Defense, Annual Report to the President and the Congress, (Washington: U.S. Government Printing Office, January 1990), p. 23.

2. I know this from personal experience as a KC-135 pilot and from personal interviews with MAC pilots at Altus AFB, Oklahoma, during my tour there as a KC-135 flying squadron commander.

distribution of flying hours among the pilot force, and even greater gains in crewmember maturity and satisfaction. Many crewmembers say they would enjoy a mix of time away from home associated with a strictly airlift mission and a somewhat more stable lifestyle associated with the alert role of the tanker. Cross-training may even help improve morale and increase retention rates of tanker/transport pilots. With all these advantages to giving MAC operational control of tankers and assigning tanker crewmembers to MAC, why hasn't this been done long ago?

The heart of the operational control issue is currently driven by the SIOP. Recently, General Hansford T. Johnson, Commander in Chief, USTRANSCOM, addressed the question of why MAC does not have operational control of the tanker fleet. In short, because the SIOP requires such fast response, SAC will not release operational control of the tankers to MAC.[1] However, my 16 years experience in SAC and my understanding of MAC tells me MAC could manage tankers on alert just as well as SAC can. From an operational standpoint, the many advantages of having all tanker/transport aircraft under a single command outweighs the coordination problems associated with giving MAC this additional responsibility. Besides, under the composite wing concept, TAC wing commanders will be involved with managing SIOP tanker forces on alert. So why not just move all tanker functions to MAC, and let TAC and SAC coordinate all their SIOP, airlift, and air refueling requirements through a single source? Notwithstanding SAC's reluctance to release operational control of the tankers, the details of transferring operational control of tankers to MAC could be worked successfully.

Thus, my recommendation stands: operational control of all tanker aircraft and responsibility for all tanker crewmembers should be assigned to MAC in order to make the tanker force function as a national mobility asset and

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1. Hansford T. Johnson, "USTRANSCOM from the CINC's Perspective," Lecture, U.S. Naval War College, Newport, RI: 29 April 1991.

satisfy the needs of all 'heavy' tanker/transport crewmembers, especially after the dual track pilot training system takes full effect in 1992. This recommendation solves the major problems of tanker aircraft and personnel management within the composite wing without changing the structure of the composite wing or losing any of the wing's benefits.

CONCLUSION

In summary, we have seen amazing things done by air power in Operations Desert Shield and Desert Storm. Behind the success of the air war was an armada of tankers, serving as tremendous force multipliers through the life-blood of air refueling. As the history of the tanker program shows, KC-135s and KC-10 tankers have unique capabilities for support of conventional forces through cargo and passenger hauling and air refueling. However, the KC-135s role in supporting nuclear alert forces restricts its use in conventional roles. Nevertheless, our nation's military leaders realize in view of reduced defense budgets and military cutbacks, the tanker is critical as a force multiplier in power projection and as a major contributor to the mobility goal of global reach. Therefore, as wings are being reshaped into composite wing structures made up of many types of aircraft, tankers must be included to give the wing rapid deployment capability and maximum ability to project force.

We have taken a thorough look at the composite wing and the advantages it offers. Currently, the Air Force plans to build two types of composite wings: one type as a powerful air strike package with lots of fighters and attack aircraft; the other a ground force support package including lots of close air support. And both will include tankers. Moreover, the performance of the 7440th Composite Wing during Desert Storm demonstrated the greatly improved efficiency of having one commander in charge of many types of aircraft molded into a single, powerful strike package In short, the unity of command in this composite wing greatly simplified command and control procedures, from

the top level JFACC down to the crewmember in the aircraft. Within the wing, organizational structures are simplified by placing every organization into one of four groups--operations, logistics, support, and medical. Furthermore, training and planning is simplified by having all units in the same location. As the wing's crews train together, better tactics are developed which, in turn, lead to better adherence to the principles of war when the unit is called into combat. Moreover, the composite wing takes full advantage of the tanker to enhance combat capability of the wing, even to the point of conducting "hyperwar" as a complete fighting package.

But in spite of all the advantages of putting tankers in composite wings, there are a few problems associated with the tanker which need attention. The primary problems concern operational control of the tanker and its management as a national asset. Somehow, the tanker must remain available for all user communities and not be completely dedicated solely to composite wing use. Otherwise, non-composite wing users such as MAC, the Navy, and the Marine Corps may not find sufficient air refueling support. In addition, other operational problems concerning tanker passenger/cargo carrying, coordination and reporting procedures between SAC, MAC, and TAC for use and location of tankers, and procedures for SIOP alert under the new wing concept must be worked out.

And the list of problems continues. On the personnel side, great potential exists for stifling ambitions of tanker crewmembers as they attempt to compete for promotion in a `fighter/bomber' wing. Adding to the problem, shortages of tanker flying hours and the new dual track pilot training system will heighten tensions between tanker and fighter crewmembers in the composite wing. Further, who will be the advocate of tanker programs to the Air Staff? Will SAC or TAC avidly pursue tanker programs and be willing to make offsets in fighter or bomber related programs to insure adequate tanker funding? How will logistics problems in maintaining a wing of dissimilar aircraft be

solved? Will the reserve tankers be properly integrated into tanker support requirements to maximize availability of active duty tankers for training with their composite wings? All these problems and questions will have to be carefully worked out.

Fortunately most of them are fairly easy to solve as plans develop and the impact of placing tankers in composite wings becomes more clearly understood. However, the problems related to management of the tanker as a national asset and problems related to tanker personnel issues can only be solved by fundamental changes in operational control and assignment of tanker personnel. Therefore, I recommend transfer of operational control of all tankers and assignment of all tanker crews to MAC. In the long run, this will provide best control for the tanker fleet and open avenues of advancement for tanker people in a `heavy' aircraft career path.

Certainly, composite wings offer the Air Force incredible power in deployable packages, and tankers are a critical part of that package. With foresight and careful planning, the Air Force can transition to this new concept with minimum growing pains and achieve the full meaning of the motto, "Global Reach, Global Power."

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